

REMARKS

Claims 6-18 are currently pending. Claims 6, 9, 11 and 15 are proposed to be amended. New claims 19-29 are proposed to be added. Applicant respectfully requests entry of this Amendment because it is believed that the Amendment places the application in condition for allowance, or at least in better form for appeal. Reconsideration is respectfully requested.

The Office Action includes a rejection of claims 11-14 and 18 under 35 U.S.C. §112, first paragraph, on grounds that the phrase "directly comparing" added to claim 11 in the previous Amendment of July 17, 2003 appears to constitute new matter. Applicant respectfully disagrees.

As noted at M.P.E.P. § 2163.02, the subject matter of a claim need not use the same terms as used in the disclosure in order for the disclosure to satisfy the written description requirement. Moreover, M.P.E.P. § 2163.02 states that the fundamental inquiry in this regard is whether the specification conveys with reasonable clarity to those skilled in the art that the applicant was in possession of the now claimed invention as of the filing date sought (citing *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991)).

In this case, the language "directly comparing" previously added to claim 11 is amply supported by the disclosure in satisfaction of the above-noted standard. For example, as noted as page 24, lines 3-6, an image interval can be determined by calculating a correlation coefficient of the luminance distribution output from first and second sensor arrays (e.g., arrays 21b and 22b illustrated in Figures 9-11). As noted at page 9, line 5 through page 10, line 22, the correlation coefficient can be calculated by calculating a difference between the luminance values from two groups

of photoreceptor elements (e.g., which can correspond to photoreceptor elements in the standard part N and photoreceptor elements in the reference part M referred to at pages 9-10 of the Description; see also Figure 4). Applicant respectfully submits that calculating a difference between luminance values from two groups of photoreceptor elements is an example of directly comparing the second photoreception signal series and the first photoreception signal series, as recited in claim 11. In particular, Applicant notes that the "difference between luminance values" described in the above-noted example is calculated by directly comparing signals from first and second groups of photoreceptor elements since, at a given time, no other signals from other photoreceptor elements are used in calculating the difference. In light of these comments, Applicants respectfully requests that the rejection be withdrawn. Of course, claim 11 is not limited to the examples discussed above.

The Office Action includes a rejection of claims 6-17 under 35 U.S.C. §102(b) as allegedly being anticipated by the Hasegawa et al. patent (U.S. Patent No. 5,715,043). This rejection is respectfully traversed.

Independent claims 6 and 9 recite, among other features, first and second area sensors. Independent claim 15 recites, among other features, an area sensor. In the previous Amendments of April 30, 2002, January 21, 2003, and July 16, 2003, Applicant submitted that the Hasegawa et al. patent did not disclose area sensors. Applicant pointed out that the term "area sensor" is a term of art known by those of ordinary skill in the art to refer to a sensor having sensing elements arranged in two dimensions, whereas "line sensors" are understood by those of ordinary skill in the art to have sensing elements arranged in one dimension (along a line). Applicant further pointed out in the July 16, 2003 Amendment that one of ordinary skill in the

art would readily understand that the sensing elements of an area sensor are arranged as a unit. In other words, the sensing elements of an area sensor are arranged contiguously in two dimensions.

The Office maintains its position that two line sensors, e.g., line sensors $4L\alpha$ and $4L\beta$ shown in Figure 17 of the Hasegawa et al. patent, together constitute one area sensor. While Applicant submits that one of ordinary skill in the art would not consider such an arrangement to constitute an area sensor, to reduce the issues claims 6, 9 and 15 are proposed to be amended to explicitly recite that each of the area sensors has sensing elements arranged contiguously in two dimensions. Applicant submits that these changes merely make explicit what one of ordinary skill in the art would already understand to be implicit. Accordingly, these changes are not intended to narrow the scope of the affected claim elements. Since this distinction has already been addressed, it is believed that these claim changes do not raise a new issue. Moreover, an example of sensing elements arranged contiguously in two dimensions is readily apparent at least from the examples of Figures 7 and 13, and the changes therefore do not constitute new matter. Of course, the claims are not limited to the examples of Figures 7 and 13.

Applicant submits that the Hasegawa et al. patent does not disclose an area sensor having sensing elements arranged contiguously in two dimensions. Rather, as noted in the previous Amendments, the Hasegawa et al. patent discloses line sensors. Moreover, Applicant submits that pairs of line sensors disclosed in the Hasegawa et al. patent, upon which the Office relies, do not have sensing elements arranged contiguously in two dimensions. Withdrawal of the rejection against claims 6, 9 and 15 is respectfully requested for at least this reason.

In addition, claims 6, 9 and 15 are proposed to be amended to explicitly recite additional distinguishing features that result from using the claimed area sensors, namely, that a given photoreception signal series constitutes a set of two-dimensional data from an object image and that the position detector detects an image interval by comparing two-dimensional image data of one photoreception signal group with two-dimensional image data of another photoreception signal group. Support for these changes may be found at least at page 18, line 7 through page 19, line 19 (see, in particular, page 19, lines 6-19, for example).

In contrast, the Hasegawa et al. patent does not disclose comparing two-dimensional image data of one photoreception signal group with two-dimensional image data of another photoreception signal group, in the manners recited in claims 6, 9 and 15. Rather, Figure 20 of the Hasegawa et al. patent discloses determining a phase difference between one-dimensional data from sensor $4L\alpha$ and one-dimensional data from sensor $4R\alpha$, and determining a phase difference between one-dimensional data from sensor $4L\beta$ and one-dimensional data from sensor $4R\beta$. In other words, even if one were to consider sensors $4R\alpha$ and $4R\beta$ to be an "area sensor", the Hasegawa et al. patent does not disclose the concept of comparing two-dimensional data from such an "area sensor" with two-dimensional data from another area sensor. Withdrawal of the rejection and allowance of claims 6, 9 and 15 are respectfully requested for at least this additional reason. Claims 7, 8, 10, 16 and 17 are allowable at least by virtue of dependency.

With regard to independent claim 11, in the previous Amendments of January 21, 2003, and July 16, 2003, Applicant submitted that the Hasegawa et al. patent did not disclose an arrangement wherein an image interval was determined by directly

comparing signals obtained from two sensor arrays that receive light from the same object image, as was recited in claim 11. Rather, Applicant submitted that the Hasegawa et al. patent disclosed determining an image distance (phase difference) from signals generated by sensor arrays from two images generated by two optical systems. Claim 11 was previously amended to recite an optical system having a "single optical axis" in this regard.

In response, the Office states that either the optical system 1L or the optical system 1R illustrated in Figure 2 of the Hasegawa et al. patent can correspond to the claimed optical system. The Office states that the presence of an additional optical system (as in the Hasegawa et al. patent) is permissible since claim 11 uses the open ended term "comprising" (paragraph 7 of the Office Action).

Claim 11 is proposed to be amended to more clearly highlight the distinction referred to above, namely, to recite an optical system having an optical axis for forming an object image on said optical axis and to recite first and second sensor arrays, each arranged in the approximate image forming plane of the optical system for receiving light of said object image formed on said optical axis. Support for this change may be found at least in Figures 9-11 and associated portions of the Description. Claim 11 further recites that an image interval is detected by directly comparing a second photoreception signal series and a first photoreception signal series, read from second and first sensor arrays, respectively. Of course, the claims are not limited to the examples of Figures 9-11.

In contrast, the Hasegawa et al. patent does not disclose an image sensing device as recited in claim 11, regardless of whether the lens 1L or 1R is alleged to correspond to the claimed optical system. In particular, if lens 1L is alleged to correspond to the claimed optical system, then the sensors $4L\alpha$ and $4L\beta$ would

allegedly correspond to the claimed first and second sensors by virtue of the relationships recited in claim 11. However, the Hasegawa et al. patent does not disclose directly comparing photoreception signals from sensors $4L\alpha$ and $4L\beta$. Rather, the Hasegawa et al. patent discloses in Figure 20 determining a phase difference $d\alpha$ from signals generated by sensors $4L\alpha$ and $4R\alpha$, and determining a phase difference $d\beta$ from signals generated by sensors $4L\beta$ and $4R\beta$ (see also col. 22, line 15 through col. 24, line 33). The Hasegawa et al. patent does not disclose directly comparing photoreception signals from sensors that are arranged relative to a common optical axis to receive an object image on that optical axis. A similar analysis is applicable for lens 1R, and it is apparent that the Hasegawa et al. patent does not disclose directly comparing photoreception signals from sensors $4R\alpha$ and $4R\beta$. Withdrawal of the rejection and allowance of claim 11 are respectfully requested for at least this reason. Claims 12-14 and 18 are allowable at least by virtue of dependency.

In paragraph 7 of the Office Action, with regard to claim 11, the Office also alleges that Applicant is confused with regard to the terms "object image" and "image" and suggests that the "object image" is the actual object. The Office also suggests that since the invention recited in claim 11 uses two sensor arrays, the device must use two images of the "object image." Applicants respectfully disagree and submit that the term "object image" means "image of the object" as noted at page 2, lines 12-13 of the Description. Further, since claim 11 recites "an optical system for forming an object image," one of ordinary skill in the art would readily understand the meaning of this terminology even without referring to the specification because an optical system would not be viewed as forming an actual

object. Moreover, one image can be projected onto two sensors such that one portion of the image impinges on one sensor and another portion of the image impinges on the other sensor. An example is shown in Figure 11 wherein a portion of image T3 impinges on sensor 22b and another portion of image T3 impinges on sensor 21b. It is hoped that these comments clarify any misconceptions the Office may have had.

New claims 19-29 are proposed to be added herein. Support for claims 19, 23, 26 and 29 may be found at least at page 9, line 5 through page 10, line 22 of the Description. Support for claim 20 may be found at least at in Figures 9, wherein it is readily apparent from the geometry therein that an optical axis of the optical unit 40b extends from a center of the circle (schematically representing a front portion of the optical system) to a central position between the sensors 21b and 22b. Support for claims 21, 22, 24, 25, 27 and 28 may be found at least in Figures 7-8 and at page 18, lines 7-19, and in Figures 13-14 and at page 29, lines 4-20. Claims 19-29 are allowable at least by virtue of dependency and contain additional subject matter not disclosed in the applied references, such as in claims 20-29 which recite additional features in connection with the claimed area sensors.

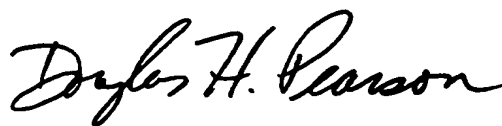
In light of the foregoing remarks, withdrawal of the rejections of record and allowance of this application are respectfully solicited. Should there be any questions in connection with this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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